

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-25 (Cancelled)

26. (Withdrawn - Currently Amended) A process of handling a solution consisting of sucrose intermediates and derivatives, including, chlorinated sucrose~~[[,]]~~ with or without impurities, comprising:

- a) removal of liquids from the ~~[[said]]~~ solution by direct drying, under conditions mild enough to prevent degradation or modification of chlorinated sucrose, for recovery of solids from the ~~[[said]]~~ liquids and the end product of such operations is a solid mass of the chemicals visibly free from the ~~[[said]]~~ liquid at least a part of which has particles that are amorphous or noncrystalline;
- b) recovering the ~~[[said]]~~ solids, present in the ~~[[said]]~~ liquid either in ~~substantially~~ pure form or with other solid impurities; and
wherein the ~~[[said]]~~ liquids being obtained in a process of producing chlorinated sucrose, mainly 1',6' Dichloro-1',6'-Dideoxy- β - D-Fructo-Furanosyl-4-

Chloro-4-Deoxy- α -D-Galactopyranoside, at a least part of which is amorphous or non crystalline.

27. (Withdrawn – Currently Amended) The process of claim 26, wherein the chlorinated sucrose (or its intermediates or derivatives) containing liquid is a sucralose mixture of the ~~respective substantially pure forms~~ as well as of several ~~solid ingredients of other chemicals~~ impurities in a dissolved or suspended state.

28. (Withdrawn – Currently Amended) The process of claim 27 wherein the individual ingredients of the [[said]] mixture of solids, containing chlorinated sucrose (or its intermediates or derivatives) as one of the ingredients, originate from reactants of a process undertaken for chlorination of sucrose-6-esters.

29. (Withdrawn) The process of claim 28 wherein the sucrose-6-ester is sucrose-6-acetate or sucrose-6-benzoate.

30. (Withdrawn) The process of claim 29 wherein the chlorinating reagent is any one suitable for chlorinating sucrose-6-ester.

31. (Withdrawn – Currently Amended) The process of claim 30 wherein the [[said]] chlorinating reagent is a Vilsmeier reagent of the formula $[XCIC=NR_2]^+Cl^-$ (where R represents an alkyl group and X represents a hydrogen atom or a methyl group).

32. (Withdrawn – Currently Amended) The process of claim 28 wherein in the [[said]] process of chlorination, sequence of steps involves addition of sucrose-6-ester solution in a tertiary amide to the chlorinating reagent for chlorination.

33. (Withdrawn – Currently Amended) The process of claim 32 wherein the [[said]] tertiary amide is N, N-dialkylformamide.

34. (Withdrawn – Currently Amended) The process of claim 33 wherein the [[said]] N, N-dialkylformamide is dimethylformamide.

35. (Withdrawn) The process of claim 26, wherein the chlorinated sucrose containing liquid contains chlorinated sucrose in pure form with impurities in small or trace quantities.

36. (Withdrawn – Currently Amended) The process of claim 35 wherein the [[said]] chlorinated sucrose containing liquid, is a wash solvent collected as effluent from a column chromatography of an impure solution of chlorinated sucrose.

37. (Withdrawn – Currently Amended) The process of claim 36 wherein the [[said]] wash solvent is subjected to concentration before subjecting to drying treatment.

38. (Withdrawn – Currently Amended) The process of claim 36 wherein the [[said]] wash solvent used for desorbition is either a single solvent like ethyl acetate, or mixture of solvents like mixture of toluene and methanol or mixture of methanol or water [[&]] and ethyl acetate.

39. (Withdrawn – Currently Amended) The process of claim 36 when the [[said]] column chromatography is done by using a suitable adsorbent preferably, alumina or silica gel.

40. (Withdrawn – Currently Amended) The process of claim 36 when the [[said]] impure solution is the crude extract of chlorinated sucrose (or its intermediates or derivatives) from a solid powder mixture of several chemicals, including chlorinated sucrose; extraction being done by any suitable extraction process including supercritical extraction or by conventional extraction in any suitable solvent including water, ethyl acetate, methanol, methyl ethyl ketone, acetone, which are capable of selective extraction of ~~substantially pure form of chlorinated sucrose free from~~ impurities.

41. (Withdrawn) The process of claim 37 wherein the concentrated extract is subjected to conventional crystallization for purification of chlorinated sugar.

42. (Withdrawn – Currently Amended) The process of claim 28, wherein the [[said]] process of chlorination comprises of:

- i) preparation of Vilsmeier reagent from Phosphorus oxy-chloride,
- ii) addition of sucrose-6-ester, preferably sucrose-6-acetate, to Vilsmeier reagent at 5° to 10°C. and allowing reaction to complete,
- iii) heating the reaction mixture to 80° to 100°C., preferably between 90° to 95°C. and maintained for half to one hour,
- iv) raising temperature of reaction mixture of step no. (iii) to 110°C., preferably to 120.° to 130°C. and maintained for 3-5 hours,
- v) cooling the reaction mass to room temperature, cooling the reaction mass into a solution of a suitable deacylating reagent in inorganic basic solution like alkali hydroxide solution accompanied by further cooling to keep the temperature below 30° to 35°C., and
- vi) adjusting the pH to 7 to 9.5 and preferably 8-9.

43. (Withdrawn) The process of claim 42 wherein at step no. v), wherein any alkoxide, preferably Potassium Methoxide or Sodium Methoxide is used instead of alkali metal oxides for deacylation.

44. (Withdrawn – Currently Amended) The process of claim 42 wherein pH is adjusted only up to 9 and reaction mixture is subjected to removal of liquids from the [[said]] solution by direct drying, under conditions mild enough to prevent degradation or modification of chlorinated sucrose, for recovery of solids from the [[said]] liquids and the end product of such operations is a solid mass of the chemicals visibly free from the [[said]] liquid.

45. (Withdrawn) The process of claim 26 wherein the solids obtained from drying of reaction mixture from chlorination step are extracted for chlorinated sucrose recovery by any suitable method of extraction, including, solvent extraction.

46. (Withdrawn – Currently Amended) The process of claim 36 wherein the [[said]] impure solution is the solution of the solid powder mixture of several chemicals, including chlorinated sucrose, made in water and subjected to purification by application of separation methods including column chromatography, extraction in water immiscible solvent having selective affinity with chlorinated sucrose or chlorinated sucrose intermediates or chlorinated sucrose derivatives.

47. (Withdrawn – Currently Amended) The process of claim 36 when the [[said]] impure solution is the crude extract of 1',6' Dichloro-1',6'-Dideoxy- β -D-Fructo-Furanosyl-4-Chloro-4-Deoxy- α -D-Galactopyranoside (or its intermediates or derivatives) from a solid powder mixture of several chemicals, including chlorinated sucrose; extraction being done by water and the water extract being subjected to a any suitable extraction process including to conventional extraction in any suitable solvent, including ethyl acetate, methanol, methyl ethyl ketone, acetone, which are capable of selective extraction of substantially pure form of chlorinated sucrose free from impurities.

48. (Currently Amended) A solid free-flowing powder form of 1',6' Dichloro-1',6'-Dideoxy- β -D-Fructo-Furanosyl-4-Chloro-4-Deoxy- α -D-Galactopyranoside, its intermediates, ~~its derivatives of process of claim 26,~~ at a least part of which is amorphous or non crystalline.

49. (Currently Amended) The 1',6' Dichloro-1',6'-Dideoxy- β -D-Fructo-Furanosyl-4-Chloro-4-Deoxy- α -D-Galactopyranoside~~Chlorinated sucrose, its intermediates, its derivatives—~~of claim 48 which comprises[[of]]:

- i) an average particle size of at the most 8 microns; ~~and micron or less, within a range of 5 micron to 8 micron.~~
- ii) a residual moisture content of at the most 10%— ~~or less, more particularly less than 5%, still more particularly less than 0.5%.~~

50. (Currently Amended) 1',6' Dichloro-1',6'-Dideoxy- β -D-Fructo-Furanosyl-4-Chloro-4-Deoxy- α -D-Galactopyranoside, its intermediates, its derivatives of chlorinated sucrose, its intermediates, its derivatives, at least a portion of which comprises of particles less than 20 micron precipitated as microcrystalline particles ~~directly from a process of crystallization~~ by direct drying.

51. (Currently Amended) The 1',6' Dichloro-1',6'-Dideoxy- β -D-Fructo-Furanosyl-4-Chloro-4-Deoxy- α -D-Galactopyranoside, its intermediates, its derivatives of claim 50 which comprises[[of]]:

- i) an average particle size distribution of 12 ~~micron~~microns or less, majority of particles being within a range of 8 ~~micron~~microns to 10 ~~micron~~microns;
- ii) various shapes ranging from globular particles to fully crystallized needles; and
- iii) a residual moisture content of 10 % or less, ~~more particularly less than 0.5%, still more particularly less than 0.3%.~~

52. (Currently Amended) 1',6' Dichloro-1',6'-Dideoxy- β -D-Fructo-Furanosyl-4-Chloro-4-Deoxy- α -D-Galactopyranoside, its intermediates, its derivatives at least a part of which consists of amorphous or non crystalline or of particles less than 12 ~~micron~~microns microcrystalline particles produced directly from a process comprising a step of direct drying.

53. (Cancelled)

54. (Withdrawn – Currently Amended) A process of claim 26 wherein the [[said]] method of drying comprises one or a combination of, agitated thin film drying, spray drying, freeze drying and super critical extraction.

55. (Withdrawn) A process of claim 26 wherein the process of production of chlorinated sucrose comprises:

- i) deacylation of intermediates of chlorinated sucrose before as well as after drying of the chlorination reaction mixture by mild drying methods described above;
- ii) use of alkali metal oxides as well as alkoxides, including Potassium Methoxide or Sodium Methoxide, for deacylation;
- iii) achieving deacylation.

56-58. (Cancelled)

59. (New) The 1',6' Dichloro-1',6'-Dideoxy- β -D-Fructo-Furanosyl-4-Chloro-4-Deoxy- α -D-Galactopyranoside of claim 49 comprising:

- i) an average particle size within the range of 5 to 8 microns; and
- ii) a residual moisture content of at most 0.5%.